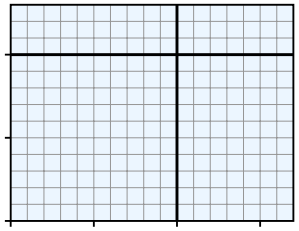
Area Model — Multiplication

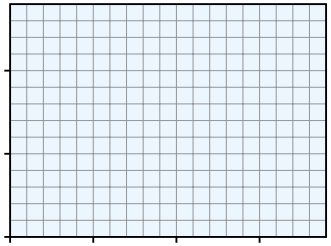
Mr. Merrick · September 30, 2025

Part A — Draw splits on the grids, label each region, and find the product.

1) 17 × 13



2) 19 × 14

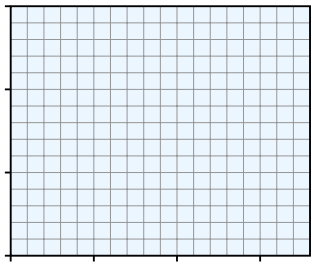


Worked example. Split shown: $(10+7)(10+3)$.

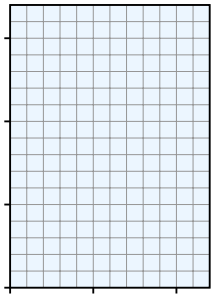
$$\begin{aligned}(17\times 13) &= (10+7)(10+3)\\ &= 10\times 10 + 10\times 3 + 7\times 10 + 7\times 3\\ &= 100 + 30 + 70 + 21\\ &= \boxed{221}\end{aligned}$$

$$\begin{aligned}19\times 14 &= (10+9)(10+4)\\ &= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_\\ &= \_\_\_\_\_\end{aligned}$$

3) 18 × 15



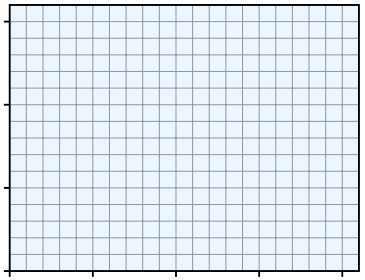
4) 12 × 17



$$\begin{aligned}18\times 15 &= (10+8)(10+5)\\ &= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_\\ &= \_\_\_\_\_\end{aligned}$$

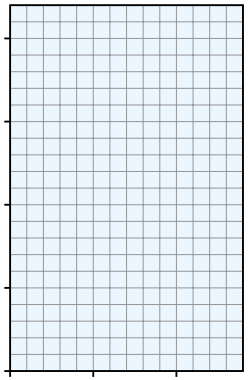
$$\begin{aligned}12\times 17 &= (10+2)(10+7)\\ &= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_\\ &= \_\_\_\_\_\end{aligned}$$

5) 21×16



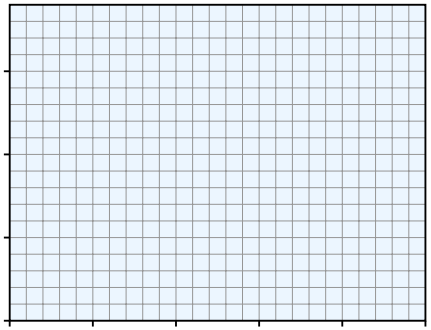
$$21 \times 16 = (20+1)(10+6)$$
$$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_\_$$

6) 14×22



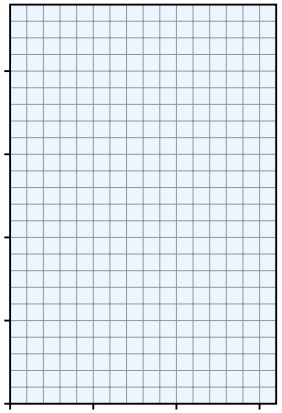
$$14 \times 22 = (10+4)(20+2)$$
$$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_\_$$

7) 25×19



$$25 \times 19 = (20+5)(10+9)$$
$$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_\_$$

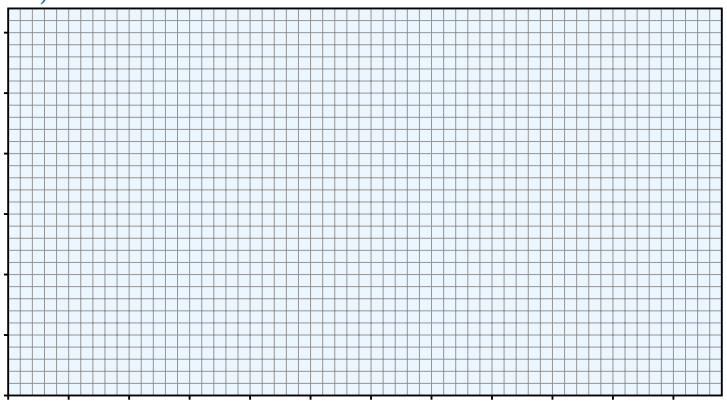
8) 16×24



$$16 \times 24 = (10+6)(20+4)$$
$$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_\_$$

Part B — Use flexible "breaks", then expand and compute.

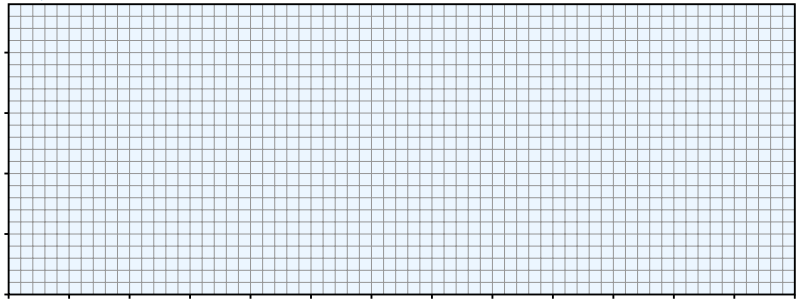
1) 59 × 32



Example break: $(50+9)(30+2)$. Draw matching split lines.

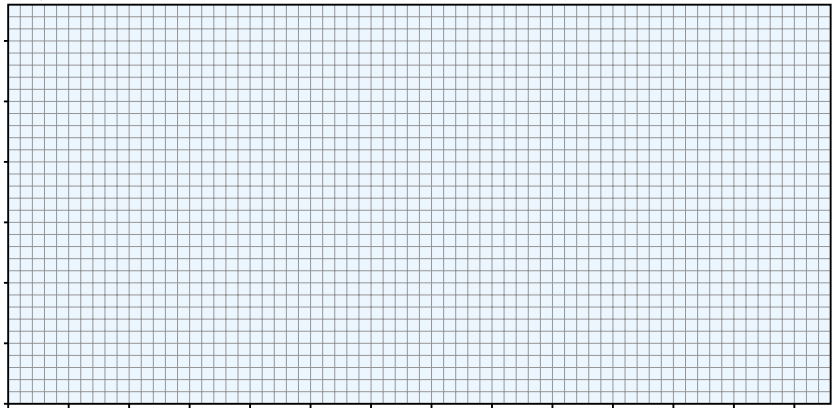
$$(50+9)(30+2) = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_$$

2) 65 × 24



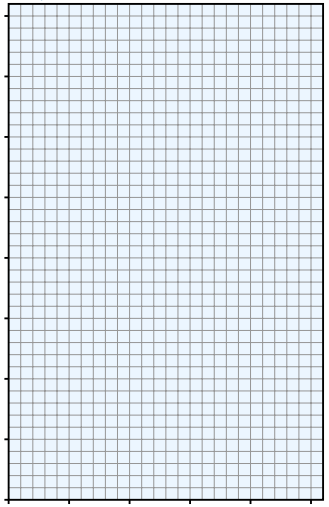
$$(30+35)(20+4) = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_$$

3) 68 × 33



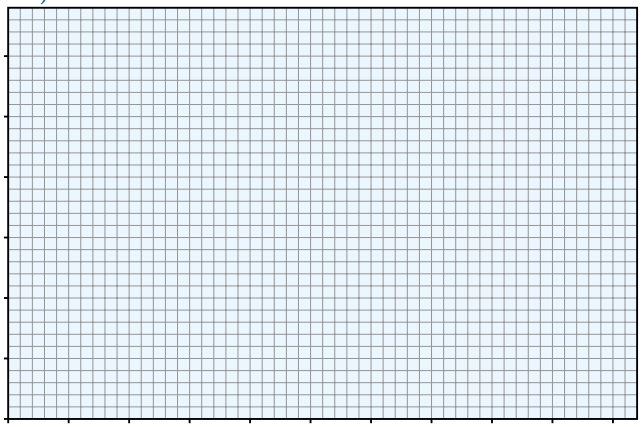
$$(60+8)(30+3) = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_$$

4) 26 × 41



$$(20+6)(40+1) = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_$$

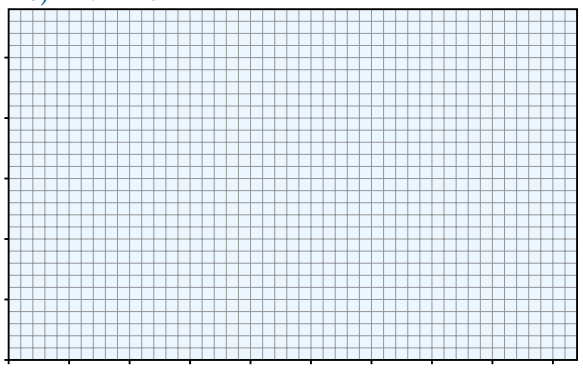
5) 52×34



$(50 + 2)(30 + 4) = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$

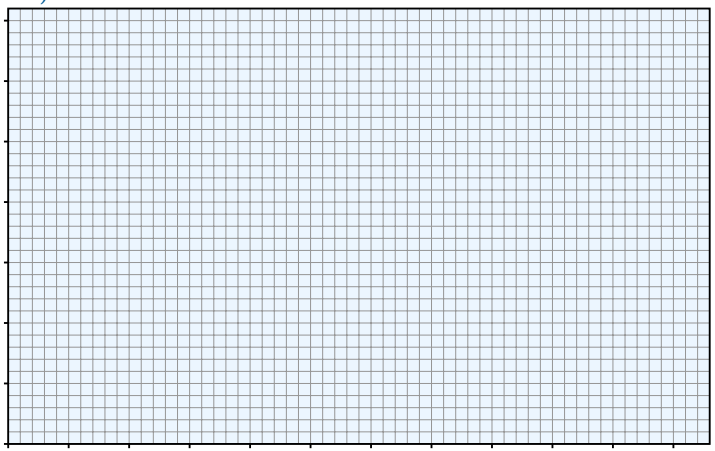
6) 47×29



$(40 + 7)(20 + 9) = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$

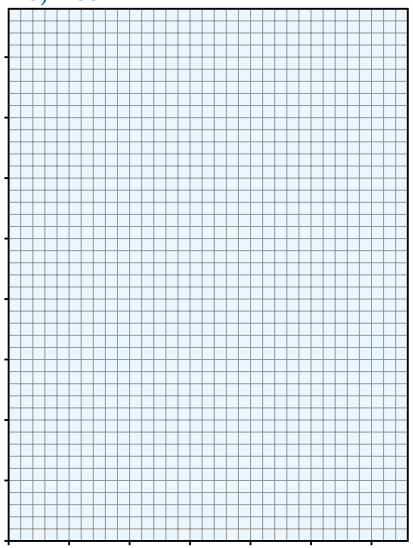
7) 58×36



$(50 + 8)(30 + 6) = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$

8) 33×44

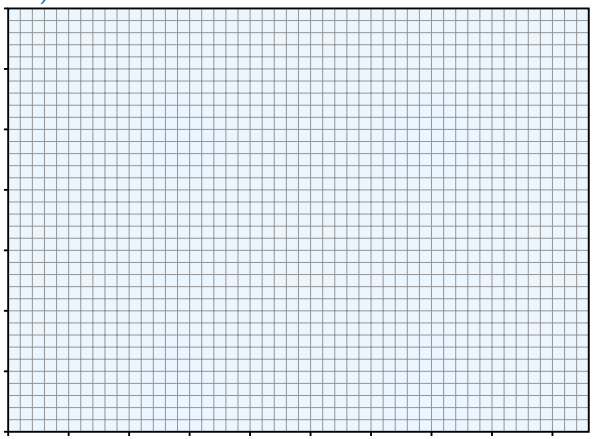


$(30 + 3)(40 + 4) = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$

Part C — Choose your own breaks, then expand and compute.

1) 48 × 35

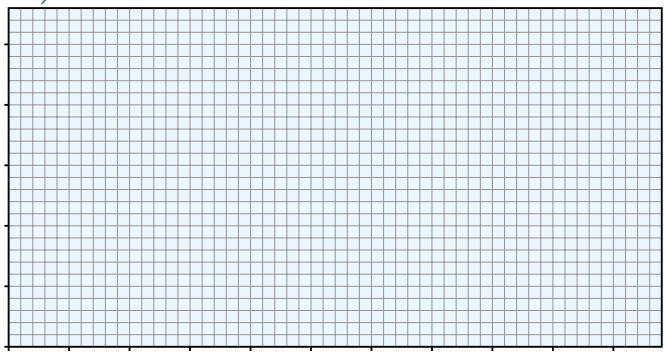


$48 \times 35 = (\_\_\_\_ + \_\_\_\_)(\_\_\_\_ + \_\_\_\_)$

$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_\_$

2) 54 × 28

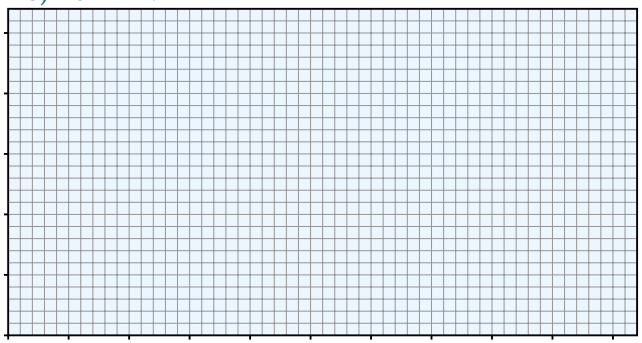


$54 \times 28 = (\_\_\_\_ + \_\_\_\_)(\_\_\_\_ + \_\_\_\_)$

$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_\_$

3) 52 × 27

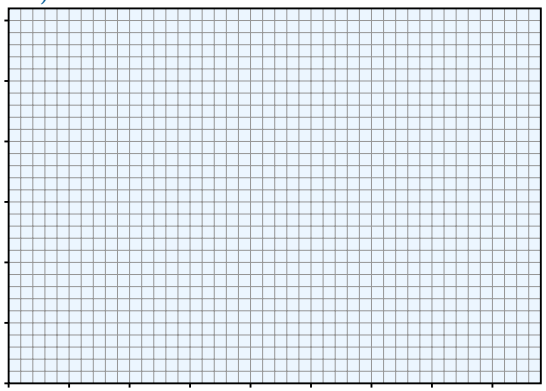


$52 \times 27 = (\_\_\_\_ + \_\_\_\_)(\_\_\_\_ + \_\_\_\_)$

$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_\_$

4) 44 × 31

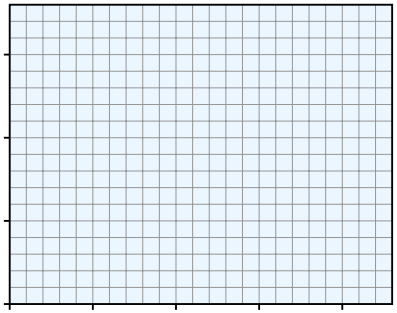


$44 \times 31 = (\_\_\_\_ + \_\_\_\_)(\_\_\_\_ + \_\_\_\_)$

$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$

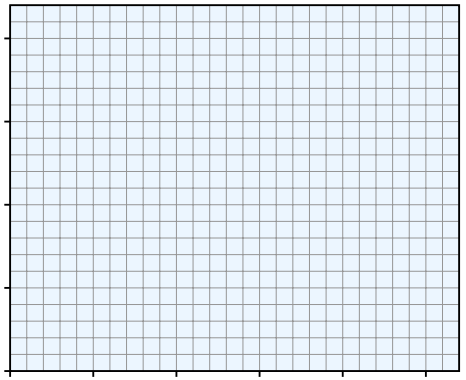
$= \_\_\_\_\_$

5) 23×18



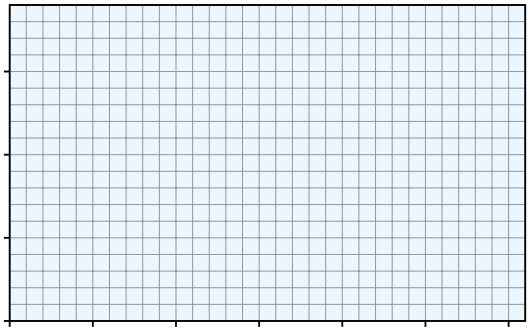
$$23 \times 18 = (\_\_\_\_ + \_\_\_\_)(\_\_\_\_ + \_\_\_\_)$$
$$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_\_$$

6) 27×22



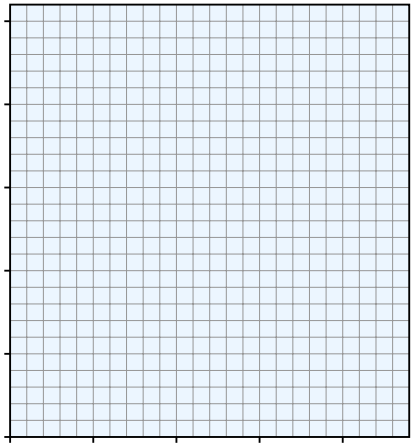
$$27 \times 22 = (\_\_\_\_ + \_\_\_\_)(\_\_\_\_ + \_\_\_\_)$$
$$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_\_$$

7) 31×19



$$31 \times 19 = (\_\_\_\_ + \_\_\_\_)(\_\_\_\_ + \_\_\_\_)$$
$$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_\_$$

8) 24×26



$$24 \times 26 = (\_\_\_\_ + \_\_\_\_)(\_\_\_\_ + \_\_\_\_)$$
$$= \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_$$
$$= \_\_\_\_\_$$

Teacher Key — Product Totals

Part A

1) $17 \times 13 = 221$
2) $19 \times 14 = 266$
3) $18 \times 15 = 270$
4) $12 \times 17 = 204$
5) $21 \times 16 = 336$
6) $14 \times 22 = 308$
7) $25 \times 19 = 475$
8) $16 \times 24 = 384$

Part B

1) $59 \times 32 = 1888$
2) $65 \times 24 = 1560$
3) $68 \times 33 = 2244$
4) $26 \times 41 = 1066$
5) $52 \times 34 = 1768$
6) $47 \times 29 = 1363$
7) $58 \times 36 = 2088$
8) $33 \times 44 = 1452$

Part C (Page 1)

1) $48 \times 35 = 1680$
2) $54 \times 28 = 1512$
3) $52 \times 27 = 1404$
4) $44 \times 31 = 1364$

Part C (Page 2)

5) $23 \times 18 = 414$
6) $27 \times 22 = 594$
7) $31 \times 19 = 589$
8) $24 \times 26 = 624$